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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,832	01/17/2002	Yong-Jun Kim	401461	5906
23548	7590	05/05/2004	EXAMINER	
LEYDIG VOIT & MAYER, LTD 700 THIRTEENTH ST. NW SUITE 300 WASHINGTON, DC 20005-3960			DONG, DALEI	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 05/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/046,832	KIM ET AL.	
	Examiner	Art Unit	
	Dalei Dong	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12 and 14-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12 and 14-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 12, 14-15 and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,373,195 to Whang in view of U.S. Patent No. 6,498,430 to Sakai.

Regarding to claims 12, 14-19 and 21-26, Whang discloses in Figure 3, a "AC PDP of this embodiment comprises a rear substrate formed with row barrier ribs 30.sub.1 to 30.sub.3 *main partition wall* arranged in parallel to each other, column barrier ribs 31.sub.1 to 31.sub.4 *auxiliary partition wall* arranged in parallel to each other to perpendicularly intersect the row barrier ribs 30.sub.1 to 30.sub.3, thereby defining rectangular sub-pixel spaces, address electrodes 29.sub.1 to 29.sub.3 formed under sub-pixel spaces and the column barrier ribs 31.sub.1 to 31.sub.5, and red, green and blue phosphor layers 23, 26 and 28 respectively disposed on the rectangular sub-pixel spaces in a delta configuration, thus forming delta color pixels, and a front substrate 22 having bus electrodes 33.sub.1 to 33.sub.3 formed corresponding to and along the row barrier ribs 30.sub.1 to 30.sub.3, sustain electrodes 32.sub.1 to 32.sub.3 formed with projected wing portions respectively sticking out over and toward the phosphor-coated sub-pixel regions from the bus electrodes 33.sub.1 to 33.sub.3" (column 4, lines 5-20).

Whang also discloses in Figure 6, "the inventive address electrodes may have varying widths, depending on its positions in the sub-pixel regions and the column barrier ribs. That is, each of the address electrode has a narrow width of 40 to 80 μm , thereby being completely covered with the corresponding column barrier rib at positions where it passes under the column barrier ribs and should not affect other sub-pixels, whereas it has a broad width of 240 to 360 μm at positions where it passes under the center portions of the sub-pixel regions and addressing is required *address electrode on the rear substrate and parallel of the auxiliary partition walls at least some of the auxiliary partition walls being disposed directly opposite address electrode*. As the width of the portions of each address electrode passing under the center portions of sub-pixel regions is designed to be about 3 to 5 times larger than the width of its portions passing under the column barrier ribs, desired addressing can be achieved in the AC PDP according to the present invention" (column 6, lines 34-48).

However, Whang does not disclose the areas of the respectively discharge cells are determined by width of the partition walls surrounding each discharge cell. Sakai teaches in Figures 1 and 2, "in the plasma display device of the present invention, spaces of the light emitting cells 5 are made to have different sizes according to luminance of the fluorescent substance 4. Namely, space of a light emitting cell 5 having fluorescent substance of lower luminance is made larger" (column 3, line 57-61).

Sakai also teaches in Figures 1 and 2, "according to the present invention, the light emitting cells are set so that a product of the cube of the size of opening of the light emitting cell of one of primary colors multiplied by luminance of light of the color

emitted by the fluorescent substance is substantially equal to that of any other primary color. Preferably, ratio of the opening sizes of cells of different primary colors falls within a range from 0.9 to 1.1 times the $1/3$ powers of the ratio of the values of luminance produced by the fluorescent substances of the respective colors. Luminance is determined separately for each of the three kinds of fluorescent substances 4, for R, G and B colors. Luminance of the color of each fluorescent substance may actually be measured using the panel of the plasma display device to be practically used, except for the size of the identical light emitting cells, then obtaining luminance of each single light from the panel which is prepared by applying a fluorescent substance of one color to all light emitting cells in the panel" (column 3, line 62 to column 4, line 12).

Sakai further discloses in Figures 1 and 2, "for the size of the light emitting cell opening of each primary color, ratio of the widths of the openings is changed. For this purpose, ratio of the partition wall pitch and/or ratio of thickness are set for the light emitting cell of each primary color" (column 4, line 13-18).

Sakai further yet teaches in Figures 1 and 2, "The first method is to change the thickness A, B and C of the partition walls 2 which form the light emitting cells 5 with pitches P1, P2 and P3 of the cells 5 of different colors being identical. Thus widths D1, D2 and D3 of the light emitting cells, and consequently the opening areas, are changed" (column 4, line 40-45).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have construct the column wall or auxiliary partition wall of the

plasma display panel of Yoshida with the varied thickness of the partition walls of Sakai in order to mitigate the deviation in the luminance of each light emitting cells.

Regarding to claim 20, Whang in view of Sakai discloses the claimed invention except for the specific area ratio of different transparent electrodes. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have adjust the area ratio of different transparent electrodes in accordance with the design specification, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

3. Claims 16-20 and 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,373,195 to Whang in view of U.S. Patent No. 6,498,430 to Sakai in further view of U.S. Patent No. 6,489,722 to Yoshida.

Regarding to claims 16-19 and 24-27, Whang in view of Sakai discloses a plasma display panel comprising: a rear substrate; a front substrate spaced from the rear substrate and forming a discharge space between the rear and front substrates; partition walls between the front and rear substrates and including main partition walls parallel to each other, having the same width, and arranged in stripes spaced from each other, and auxiliary partition walls transverse to and connected to the main partition walls, each auxiliary partition wall having a uniform width, different auxiliary partition walls having respective, different widths, the main partition walls and the auxiliary partition walls

defining and surrounding respective red, green, and blue discharge cells having coatings of respective fluorescent substances respectively producing red, green, and blue light, wherein the discharge cells have respective areas differing in accordance with ratios of efficiencies of light radiation by the respective fluorescent substances, the varying areas of the discharge cell being determined by respective widths of the auxiliary partition walls defining the cells, address electrodes on the rear substrate and parallel to the auxiliary partition walls. at least some of the auxiliary partition walls being disposed directly opposite address electrodes; and pairs of first and second electrodes disposed on respective pairs of the main partition walls and extending in a direction crossing the address electrodes.

However, neither Whang nor Sakai discloses a third transparent electrode.

Yoshida teaches in Figure 1, "a pair of substrate structures (including cell constructing elements on a substrate) 10, 20, and has a three-electrode surface discharge structure. In each cell of a screen (a display surface) ES, a pair of display electrodes X, Y and an address electrode A cross each other. The display electrodes X, Y are arranged on the inner surface of a glass substrate 11 of a front substrate structure 10. Each of the display electrodes X, Y has a transparent conductive film 41 that forms a surface discharge gap for each cell and a metal film (a bus conductor) 42 that is overlaid on the middle of the conductive film 41 in the column direction. The metal film 42 is drawn out of the screen ES, so as to connect with a drive circuit. The display electrodes X, Y are covered with a dielectric layer 17 having the thickness of approximately 30-50 .mu.m, and the dielectric

layer 17 is coated with a magnesia (MgO) as a protection film 18” (column 6, lines 17-32).

Yoshida also teaches in Figure 1, “the address electrodes A are arranged on the inner surface of a glass substrate 21 of a back substrate structure 20, and are covered with a dielectric layer 24. On the dielectric layer 24, partitions 29 having the height of approximately 150 .mu.m for defining a discharge gas space 31 of two cells in accordance with the present invention. The partition 29 includes a portion for dividing the discharge gas space to columns (hereinafter, referred to as a vertical portion) 291 and a portion for dividing the discharge gas space at an appropriate position in the column direction (hereinafter, referred to as a horizontal portion) 292. Three colors of fluorescent layers 28R, 28G and 28B for color display are arranged to as to cover the inner surface of the back side including the surface of the dielectric layer covering the address electrode A and the side face of the partition 29. The fluorescent layers 28R, 28G and 28B are excited locally by ultraviolet rays emitted by a discharge gas and emit light. Italic characters (R, G and B) in FIG. 1 indicate light emission colors of the fluorescent materials” (column 6, lines 33-51).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have construct the column wall or auxiliary partition wall of the plasma display panel of Yoshida with the varied thickness of the partition walls of Sakai along with the third electrode of Yoshida in order to mitigate the deviation in the luminance of each light emitting cells and to reduce a flicker and to decrease the area of cross talk in the column direction so that a display fluctuation can be reduced.

Regarding to claims 20 and 28, Whang in view of Sakai discloses the claimed invention except for the specific area ratio of different transparent electrodes. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have adjust the area ratio of different transparent electrodes in accordance with the design specification, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Response to Arguments

4. Applicant's arguments with respect to claims 12, 14-28 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following prior art are cited to further show the state of the art of composition of a plasma display panel.

U.S. Patent No. 5,717,291 to Kim

U.S. Patent No. 6,051,928 to Choi.


Art Unit: 2879

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalei Dong whose telephone number is (571)272-2370. The examiner can normally be reached on 8 A.M. to 5 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel can be reached on (571)272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

D.D.
April 20, 2004


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